

What Is Claimed Is:

1. A method for operating an internal combustion engine in which an air-fuel ratio in a combustion chamber is a function of at least one of (a) operating conditions and (b) an operating state of the engine, the method comprising:

using a data model, determining a variable expressing a target air-fuel ratio from a target torque and an air mass ascertained with the aid of one of a model and a measured value, and determining a setpoint fuel quantity to be injected into the combustion chamber; and

using the data model, determining a setpoint air mass to be conducted to the combustion chamber from the target torque and the variable expressing the air-fuel ratio in the combustion chamber.

2. The method according to claim 1, wherein the variable expressing the air-fuel ratio is an inverse of an air ratio lambda.

3. The method according to claim 1, wherein, when determining the setpoint fuel quantity, the variable expressing the air-fuel ratio is limited by an emission-specific limit value.

4. The method according to claim 3, wherein the emission-specific limit value is determined from the air mass, ascertained with the aid of one of a model and a measured value, and from a rotational speed of a crankshaft of the engine.

5. The method according to claim 4, wherein the emission-specific limit value is determined further from a position of an onset of a fuel injection relative to an angle of the crankshaft.

6. The method according to claim 3, further comprising filtering a torque desired by a user of the engine.

7. The method according to claim 1, wherein, when determining the setpoint fuel quantity, the variable expressing the air-fuel ratio is limited by at least one limit

value, which is a function of an operating mode.

8. The method according to claim 3, further comprising populating the data model, in a vicinity of a limiting of the variable expressing the air-fuel ratio, in such a way that a soft transition to the limiting is produced.

9. The method according to claim 1, wherein the data model includes at least one of a characteristic set and a map.

10. A computer program stored on a storage medium and containing instructions to perform the following steps:

using a data model, determining a variable expressing a target air-fuel ratio from a target torque and an air mass ascertained with the aid of one of a model and a measured value, and determining a setpoint fuel quantity to be injected into the combustion chamber; and

using the data model, determining a setpoint air mass to be conducted to the combustion chamber from the target torque and the variable expressing the air-fuel ratio in the combustion chamber.

11. An electric storage medium for a control device of an internal combustion engine, the medium storing a computer program for performing the following steps:

using a data model, determining a variable expressing a target air-fuel ratio from a target torque and an air mass ascertained with the aid of one of a model and a measured value, and determining a setpoint fuel quantity to be injected into the combustion chamber; and

using the data model, determining a setpoint air mass to be conducted to the combustion chamber from the target torque and the variable expressing the air-fuel ratio in the combustion chamber.

12. A control/regulating device for an internal combustion engine programmed to perform the following steps:

using a data model, determining a variable expressing a target air-fuel

ratio from a target torque and an air mass ascertained with the aid of one of a model and a measured value, and determining a setpoint fuel quantity to be injected into the combustion chamber; and

using the data model, determining a setpoint air mass to be conducted to the combustion chamber from the target torque and the variable expressing the air-fuel ratio in the combustion chamber.